



# RAILROAD COMMISSION OF TEXAS

## OFFICE OF GENERAL COUNSEL

**District 09**  
**Status No. 700378**  
**RULE 37 CASE NO. 0271738**

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**APPLICATION OF CHESAPEAKE OPERATING, INC. FOR A RULE 37 EXCEPTION  
FOR THE ESCALADE LEASE, WELL NO. 7H, NEWARK, EAST (BARNETT SHALE)  
FIELD, TARRANT COUNTY, TEXAS**

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**APPEARANCES:**

**FOR APPLICANT:**

Glenn E. Johnson  
Ray Oujesky  
David C. Triana  
Bill G. Spencer  
Alan Jackson  
Steve Mills

**APPLICANT:**

Chesapeake Operating, Inc.

**FOR PROTESTANT:**

David Nelson

**PROTESTANT:**

BP Centerpoint IV LP

**PROPOSAL FOR DECISION**

**PROCEDURAL HISTORY**

**DATE APPLICATION FILED:**

July 28, 2011

**DATE OF NOTICE OF HEARING:**

December 12, 2011

**DATE OF HEARING:**

January 27, 2012

**HEARD BY:**

James M. Doherty, Hearings Examiner

Richard Atkins, Technical Examiner

**DATE TRANSCRIPT RECEIVED:**

February 3, 2012

**DATE PFD CIRCULATED:**

March 9, 2012

**STATEMENT OF THE CASE**

Chesapeake Operating, Inc. ("Chesapeake") seeks a Rule 37 exception for the Escalade Lease, Well No. 7H, a horizontal well in the Newark, East (Barnett Shale) Field, Tarrant County, Texas. This well has an existing drilling permit which allows perforation of 1,401 feet of drainhole, but which has a no perforation zone ("NPZ") precluding perforation of 1,968 feet of drainhole. The well has been drilled, but has not yet been completed with perforations. The purpose of this Rule 37 application is to obtain a drilling permit which will allow Chesapeake to perforate the entire 3,369 feet of drainhole, in practical effect eliminating the NPZ contained in the existing permit for the well. A Rule 37 exception is required, because completion of the well as proposed will place the section of the well proposed to be perforated 44 feet from unleased Tract No. 76 (6.161 acres) owned by BP Centerpoint IV LP ("BP Centerpoint") and 101 feet from unleased Tract No. 73 (4.86 acres) owned by a non-protestant. The application is opposed by BP Centerpoint.

Appendix 1 to this PFD is a copy of Chesapeake Exhibit No. 17, a plat of the Escalade pooled unit showing tracts within the perimeter of the unit that are leased or unleased and the as-drilled location of Well No. 7H, as well as additional wells that have been drilled on the Unit. The portion of Well No. 7H shown in red is the portion presently subject to the 1,968 foot NPZ. The portion of the well shown in blue is the 1,401 foot section of the well that can be perforated according to the well's existing permit. If the present Rule 37 application is approved, all 3,369 feet of drainhole will be perforated.

**DISCUSSION OF THE EVIDENCE**

**Chesapeake**

The existing drilling permit for the Escalade Lease, Well No. 7H was issued on July 25, 2011. There are two unleased tracts of land internal to the Escalade pooled unit that are closer to Well No. 7H than 330 feet, which is the applicable lease line spacing distance. These are Tract Nos. 73 and 76. The existing drilling permit for Well No. 7H has a 1,968 foot NPZ adjacent to the two unleased tracts. The existing drilling permit for Well No. 7H, as NPZ-restricted, allows only 1,401 feet of drainhole to be completed with perforations.

Chesapeake has permitted eight horizontal wells on the Escalade pooled unit, Well Nos. 1H, 2H, 3H, 4H, 5H, 6H, 7H and 8H. Only Well No. 7H is presently NPZ-restricted. All of these wells, except for Well No. 8H, have been drilled. Well No. 1H has been drilled and completed, and is producing. Well Nos. 2H, 3H, 4H, 5H, 6H, and 7H are awaiting completion. According to Chesapeake, Well No. 8H will not be drilled, because the area of the unit that would be drained by this well will be drained by Well No. 6H.

Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot lease line spacing. As to horizontal wells, where the horizontal portion of the well is cased and cemented back

above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the distance to the nearest perforation in the well, and not based on the penetration point or terminus.

Well Nos. 1H, 2H, 3H, 4H, and 5H occupy and fully develop the western two-thirds of the Escalade pooled unit. There are four sizeable unleased tracts of land in the eastern one-third of the Unit that preclude the drilling of horizontal wells of feasible length at regular locations. Well No. 7H is sandwiched between unleased Tract Nos. 73 and 76, and located in the eastern one-third of the unit between Well Nos. 5H and 6H.

A Chesapeake geologist presented a stratigraphic cross section on top of the Barnett Shale and an isopach map showing the thickness of the Barnett Shale across the area of the Escalade pooled unit. Average thickness of the Barnett Shale beneath the Unit is about 450 feet.

For the purpose of developing a methodology for calculating the estimated ultimate recoveries of wells on the Escalade pooled unit that have not yet begun to produce, a Chesapeake engineer presented a plot of estimated ultimate recovery versus drainhole length for 62 wells within five miles of the Escalade Unit that had sufficient production data to determine EUR by decline curve. A computer generated least squares regression of the data points on the plot developed a line through the data points with a positive slope of 1.237 and an intercept of 362.97. The implication of this plot is that a horizontal well in the Barnett Shale ultimately will recover 1.237 MMCF of gas per foot of drainhole plus the plot's intercept of 362.97 MMCF.

Chesapeake's engineer calculated current recoverable reserves beneath the Escalade pooled unit based on a traditional volumetric calculation performed by Devon Energy & Production Company, L.P. in a 2005 Barnett Shale field rules hearing before the Commission in Oil & Gas Docket No. 09-0243843. Devon's study developed a gas in place calculation of 139 BCF per square mile (640 acres) for Tarrant County based on reservoir thickness of 433 feet. Reservoir thickness in the area of the Escalade pooled unit is about 450 feet. For the 358.908 acres under lease to Chesapeake within the perimeter of the Escalade pooled unit, gas in place is about 81.0107 BCF, and based on a 30% recovery factor, original recoverable gas in place was 24.303 BCF. The Escalade No. 1H has produced 0.246 BCF, leaving current recoverable gas in place of 24.057 BCF.

To demonstrate that a Rule 37 exception is needed for the Escalade No. 7H to provide Chesapeake with an opportunity to recover its fair share of gas, Chesapeake's engineer calculated the estimated ultimate recoveries for the Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, and 6H. Because Well No. 1H had about two months of production to work with, the EUR for this well was developed by decline curve. For the remainder of the wells, which have yet to produce, the EUR was developed by using the assumptions developed in Chesapeake's plot of EUR versus drainhole length for 62 wells within five miles of the Escalade pooled unit. This plot assumes that a horizontal well in this area ultimately will recover 1.237 MMCF per foot of drainhole plus 362.97 MMCF. Based on these methodologies, the Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, and 6H ultimately will recover 19.701

BCF. Because the current recoverable gas beneath the Unit is 24.057 BCF, an additional well is needed to recover as much as possible of the 4.6 BCF that will not be recovered by the Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, and 6H.

Chesapeake's engineer also presented exhibits to demonstrate how Chesapeake's ability to recover its fair share of gas is affected by the NPZ on the existing drilling permit for Well No. 7H. If Chesapeake is granted the opportunity to complete Well No. 7H without an NPZ, it will be able to perforate 3,369 feet of drainhole. If the requested Rule 37 exception is denied, Chesapeake will be able to perforate only 1,401 feet of drainhole. Assuming the entire 3,369 feet of drainhole can be perforated, the well will have an estimated ultimate recovery of about 4.53 BCF. If only 1,401 feet of drainhole can be completed with perforations, the well will have an estimated ultimate recovery of about 2.09 BCF. Retention of the NPZ on Well No. 7H will cause about 2.43 BCF to go unrecovered.

Even if the NPZ in the existing permit for the Escalade #7H is modified to apply only to the BP Centerpoint Tract No. 76, the NPZ would inhibit Chesapeake's opportunity to recover its fair share of gas. The NPZ required to make the well regular to Tract No. 76 would be 1,473.87 feet and would preclude the well from recovering about 1.8 BCF. This 1.8 BCF would go unrecovered.

#### **BP Centerpoint IV LP**

BP Centerpoint appeared through its attorney who cross-examined applicant's witnesses, but did not otherwise present any evidence. BP Centerpoint's attorney argued that Chesapeake's evidence as to the need for the requested Rule 37 exception to recover Chesapeake's fair share of gas is speculative. BP Centerpoint believes that predicting the amount of gas that will be produced by the wells that have been drilled on the unit based purely on the length of the drainholes is fraught with uncertainty. Furthermore, BP Centerpoint argues that the Escalade #8H, if it were drilled, would recover about the same amount of gas as would go unrecovered if the NPZ on the Escalade #7H remained in place.

#### **EXAMINERS' OPINION**

An owner of oil and gas is entitled to an opportunity to recover the reserves underlying his tract, and any denial of that opportunity amounts to confiscation. *Atlantic Refining Co. v. Railroad Commission*, 346 S.W.2d 801 (Tex. 1961); *Imperial American Resources Fund, Inc. v. Railroad Commission*, 557 S.W.2d 280 (Tex. 1977). When the subject tract is capable of supporting a regular location, the applicant for a Rule 37 exception based on confiscation must prove that the proposed irregular location is necessary because of surface or subsurface conditions and that the proposed location is reasonable. To do this, the applicant must show that it is not feasible to recover its fair share of hydrocarbons from regular locations.

The examiners believe that approval of the Rule 37 exception requested by Chesapeake is necessary to prevent confiscation. Without the ability to complete with perforations the entire 3,369 feet of the Escalade #7H drainhole, Chesapeake will not have an opportunity to recover its “fair share” of gas from the reservoir, that is, an amount of gas equal to the current recoverable gas beneath the Escalade unit.

The Escalade unit has been fully developed by the drilling of the Escalade Nos. 1H, 2H, 3H, 4H, 5H, 6H, and 7H. Only the Escalade #7H is now burdened by a NPZ. Well Nos. 1H, 2H, 3H, 4H, and 5H occupy and fully develop the western two-thirds of the Escalade unit. There are four sizeable unleased tracts of land in the eastern one-third of the unit that preclude the drilling of horizontal wells of feasible length at regular locations. Well No. 7H is sandwiched between unleased Tract Nos. 73 and 76, and located in the eastern one-third of the unit between Well Nos. 5H and 6H. There is no regular location remaining on the unit where a feasible horizontal well might be drilled to recover the amount of gas that will go unrecovered if Well No. 7H cannot be perforated along its entire 3,369 foot drainhole.

Current recoverable gas beneath the Escalade unit is about 24 BCF. The Escalade Nos. 1H, 2H, 3H, 4H, 5H, 6H will recover about 19.7 BCF. The Escalade #7H, as NPZ restricted, will recover only about 2 BCF. Unless the requested Rule 37 exception is granted, allowing Chesapeake to perforate the entire 3,369 foot drainhole of the Escalade #7H, a combination of Well Nos. 1H, 2H, 3H, 4H, 5H, 6H, and 7H ultimately will recover about 2.3 BCF less than Chesapeake’s “fair share” of gas. Although Chesapeake obtained a drilling permit for the Escalade #8H, it is now clear that this well will not be drilled because it would compete for reserves with the Escalade #6H.

Based on the record in this case, the examiners recommend adoption of the following Findings of Fact and Conclusions of Law.

#### **FINDINGS OF FACT**

1. At least ten (10) days notice of this hearing was provided to all affected persons as defined by Statewide Rule 37(a)(2) and 37(a)(3).
2. Chesapeake Operating, Inc. (“Chesapeake”) seeks a Rule 37 exception for the Escalade Lease, Well No. 7H, a horizontal well in the Newark, East (Barnett Shale) Field, Tarrant County, Texas.
3. The Escalade #7H has an existing drilling permit which allows perforation of 1,401 feet of drainhole, but which has a no perforation zone (“NPZ”) precluding perforation of 1,968 feet of drainhole. The well has been drilled, but has not yet been completed with perforations.
4. The purpose of this Rule 37 application is to obtain a drilling permit which will allow Chesapeake to perforate the entire 3,369 feet of drainhole of the Escalade #7H, in practical

effect eliminating the NPZ contained in the existing permit for the well. A Rule 37 exception is required, because completion of the well as proposed will place the section of the well proposed to be perforated 44 feet from unleased Tract No. 76 (6.161 acres) owned by BP Centerpoint IV LP ("BP Centerpoint") and 101 feet from unleased Tract No. 73 (4.86 acres) owned by a non-protestant.

5. The Chesapeake application is opposed by BP Centerpoint.
6. Appendix 1 to this PFD, which is incorporated into this finding by reference, is a copy of Chesapeake Exhibit No. 17, a plat of the Escalade pooled unit showing tracts within the perimeter of the unit that are leased or unleased and the as-drilled location of Well No. 7H, as well as additional wells that have been drilled on the Unit. The portion of Well No. 7H shown in red is the portion presently subject to the 1,968 foot NPZ. The portion of the well shown in blue is the 1,401 foot section of the well that can be perforated according to the well's existing permit.
7. Chesapeake has permitted eight horizontal wells on the Escalade pooled unit, Well Nos. 1H, 2H, 3H, 4H, 5H, 6H, 7H and 8H. Only Well No. 7H is presently NPZ-restricted. All of these wells, except for Well No. 8H, have been drilled. Well No. 1H has been drilled and completed, and is producing. Well Nos. 2H, 3H, 4H, 5H, 6H, and 7H are awaiting completion. According to Chesapeake, Well No. 8H will not be drilled, because the area of the unit that would be drained by this well will be drained by Well No. 6H.
8. Special field rules for the Newark, East (Barnett Shale) Field provide for 330 foot lease line spacing. As to horizontal wells, where the horizontal portion of the well is cased and cemented back above the top of the Barnett Shale formation, the distance to any property line, lease line, or subdivision line is calculated based on the distance to the nearest perforation in the well, and not based on the penetration point or terminus.
9. Well Nos. 1H, 2H, 3H, 4H, and 5H occupy and fully develop the western two-thirds of the Escalade pooled unit. There are four sizeable unleased tracts of land in the eastern one-third of the Unit that preclude the drilling of horizontal wells of feasible length at regular locations. Well No. 7H is sandwiched between unleased Tract Nos. 73 and 76, and located in the eastern one-third of the unit between Well Nos. 5H and 6H.
10. For the 358.908 acres under lease to Chesapeake within the perimeter of the Escalade pooled unit, gas in place is about 81.0107 BCF, and based on a 30% recovery factor, original recoverable gas in place was 24.303 BCF. The Escalade No. 1H has produced 0.246 BCF, leaving current recoverable gas in place of 24.057 BCF.
11. For the purpose of developing a methodology for calculating the estimated ultimate recoveries of wells on the Escalade pooled unit that have not yet begun to produce, a

Chesapeake engineer presented a plot of estimated ultimate recovery versus drainhole length for 62 wells within five miles of the Escalade Unit that had sufficient production data to determine EUR by decline curve. A computer generated least squares regression of the data points on the plot developed a line through the data points with a positive slope of 1.237 and an intercept of 362.97. The implication of this plot is that a horizontal well in the Barnett Shale ultimately will recover 1.237 MMCF of gas per foot of drainhole plus the plot's intercept of 362.97 MMCF.

12. The Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, and 6H ultimately will recover 19.701 BCF. Because the current recoverable gas beneath the Unit is 24.057 BCF, an additional well is needed to recover as much as possible of the 4.6 BCF that will not be recovered by the Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, and 6H.
13. To have an opportunity to recover its "fair share" of gas from the reservoir, Chesapeake must have the ability to complete the Escalade #7H with perforations along the entire 3,369 feet of drainhole. If the well is completed in this manner, it ultimately will recover about 4.53 BCF.
14. If the requested Rule 37 exception were denied, and the Escalade #7H were completed with perforations only along the 1,401 feet of drainhole that lies outside the NPZ in the well's existing permit, the well ultimately would recover only about 2.09 BCF.
15. Unless the requested Rule 37 exception is granted and Chesapeake is able to perforate the entire drainhole of the Escalade #7H, a combination of the Escalade Well Nos. 1H, 2H, 3H, 4H, 5H, 6H, and 7H ultimately will recover about 2.3 BCF less than Chesapeake's "fair share" of gas.
16. Retention of the NPZ on the Escalade #7H would cause about 2.43 BCF of gas to go unrecovered. There is no remaining regular location on the Escalade pooled unit where an additional well might be drilled to recover this gas or its equivalent without competing for reserves with an existing well.
17. The location of the Escalade #7H is reasonable.
  - a. The location is necessary to fully develop the Escalade pooled unit.
  - b. The location is necessary to avoid competition with other wells on the unit for the same reserves.
  - c. Perforation of the well along its entire drainhole is necessary to provide Chesapeake with an opportunity to recover its fair share of gas from the reservoir.

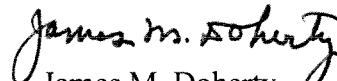
**CONCLUSIONS OF LAW**


1. Proper notice of hearing was timely issued by the Railroad Commission to appropriate persons legally entitled to notice.
2. All things necessary to the Commission attaining jurisdiction over the subject matter and the parties in this hearing have been performed.
3. Approval of a Rule 37 exception for the Escalade Lease, Well No. 7H, Newark, East (Barnett Shale) Field, Tarrant County, Texas, is necessary to prevent confiscation and protect the correlative rights of mineral owners.

**RECOMMENDATION**

The examiners recommend that the application of Chesapeake Operating, Inc., for a Rule 37 exception for the Escalade Lease, Well No. 7H in the Newark, East (Barnett Shale) Field, Tarrant County, Texas, be granted as necessary to prevent confiscation and protect correlative rights.

Respectfully submitted,

  
James M. Doherty  
Hearings Examiner

  
Richard Atkins *by EKL*  
Technical Examiner